

- 1 1. A tubular expansion tank, comprising:
2 a pressure assembly having a passage fitting providing fluidic communication
3 between an interior and an exterior of the pressure assembly; and
4 a water chamber assembly comprising:
5 a tube having first and second ends, wherein the first end has at least one
6 notch;
7 a cylindrical diaphragm disposed about the tube, wherein the notch
8 provides fluidic communication between an interior of the tube and an
9 interior of the diaphragm; and
10 a collar providing fluidic communication between the passage fitting and
11 the interior of the tube, wherein a first end of the diaphragm is sealingly
12 fitted to a portion of the collar.
- 13 2. The tubular expansion tank of claim 1, further comprising a valve providing
14 controllable fluidic communication between an exterior of the tank and a space
15 between the pressure assembly and the diaphragm.
- 16 3. The tubular expansion tank of claim 1, wherein the pressure assembly is metallic
17 and comprises first and second domes sealingly affixed to one another, wherein
18 the passage fitting is disposed in one of the first and second domes.
- 19 4. The tubular expansion tank of claim 1, wherein a portion of the collar has an outer
20 diameter that is approximately equal to an inner diameter of the diaphragm.
- 21 5. The tubular expansion tank of claim 1, wherein the first end of the tube has a
22 plurality of notches.
- 23 6. The tubular expansion tank of claim 1, wherein the water chamber assembly
24 further comprises a cap disposed at the second end of the tube to which a second
25 end of the diaphragm is sealingly fitted.

- 1 7. The tubular expansion tank of claim 6, wherein the cap is sealingly attached to the
2 second end of the tube.
- 3 8. The tubular expansion tank of claim 1, wherein the tank is adapted and
4 constructed such that at least a middle portion of the diaphragm is configured to
5 contact the tube at normal operating pressures.
- 6 9. A tubular expansion tank, comprising:
7 a metallic pressure assembly, comprising:
8 first and second domes joined by a welded joint to form a chamber; and
9 a fitting attached to the first dome and adapted and constructed for
10 connection to a plumbing system and providing fluidic
11 communication between an interior and an exterior of the pressure
12 assembly; and
13 a water chamber assembly, comprising:
14 a tube having first and second ends;
15 a cylindrical diaphragm disposed about the tube, wherein an interior of the
16 diaphragm is in fluidic communication with an interior of the tube; and
17 a collar providing fluidic communication between the fitting and the
18 interior of the tube, wherein a first end of the diaphragm is sealingly
19 affixed to a portion of the collar.
- 20 10. The tubular expansion tank of claim 9, further comprising a valve providing
21 controllable fluidic communication between an exterior of the tank and a space
22 between the metallic pressure assembly and the diaphragm, wherein the valve is
23 disposed in a wall of one of the domes.
- 24 11. The tubular expansion tank of claim 9, wherein fluidic communication between
25 the interior of the tube and the interior of the diaphragm is provided by at least
26 one notch disposed in the first end of the tube.

- 1 12. The tubular expansion tank of claim 11, wherein the first end of the tube has a
2 plurality of notches.
- 3 13. The tubular expansion tank of claim 9, wherein the tank is adapted and
4 constructed such that at least a middle portion of the diaphragm is configured to
5 contact the tube at normal operating pressures.
- 6 14. A preassembled water chamber assembly for an expansion tank, comprising:
7 a tube having first and second ends;
8 a collar disposed at the first end of the tube;
9 a cap disposed at the second end of the tube; and
10 a resilient diaphragm having first and second ends, wherein the first end of the
11 diaphragm is sealingly fitted about the collar and the second end of the
12 diaphragm is sealingly fitted about the cap.
- 13 15. The water chamber assembly of claim 14, wherein the first end of the tube has at
14 least one notch providing fluidic communication between an interior of the tube
15 and an interior of the diaphragm.
- 16 16. The water chamber assembly of claim 15, wherein the first end of the tube has a
17 plurality of notches.
- 18 17. The water chamber assembly of claim 14, wherein the collar comprises two
19 portions having different exterior diameters, and wherein the exterior diameter of
20 one of the portions is the same as the exterior diameter of the cap.
21
- 22 18. The water chamber assembly of claim 14, wherein the cap is sealingly attached to
23 the second end of the tube.